

REMARKS

Upon entry of the Amendment, Claims 1-10, 14-15, 20, 24, 25, and 27-33 are all the claims pending in the application.

The amendments are explained below.

Claim 1 is amended to recite "wherein said collector has an active material provided thereon and is kept pressed at ~~there is provided a structure such that~~ a pressure of 4×10^4 to 20×10^4 Pa ~~is maintained perpendicular~~ perpendicularly to the surface of said collector".

The amendment of claim 1 is based on the present description, for example, at page 33, lines 3-5 that "the storage battery comprising the collector which is kept pressed at a predetermined required pressure". The object of the amendment is to clarify the indefinite description, and in the amendment, no new matter is added.

Claim 10 is amended to be a dependent claim from claim 1, and new claims 28-30 are added reciting the subject matter of claim 10 except for being dependent from claims 2-4, respectively. Accordingly, the amendment does not correspond to the addition of new matter. In addition, the only independent claim in the present invention now is claim 1, according to the amendment of claim 10. New claims 31 and 32 correspond to claims 24 and 25, respectively, except for their dependency, and new claim 33 corresponds to cancelled claim 26 except for its dependency.

Moreover, the amendment of the paragraph bridging page 8 to page 9 of the present specification corrects an inappropriate English translation from the original Japanese language

PCT application, which is now amended to the proper description. Accordingly, the amendment does not correspond to the addition of any new matter.

The amendment to the specification at page 22 reconciles a disagreement between the contents of the present specification and the Figures in the present application. In the present specification, the disclosure on page 22 of "The transition of discharge capacity during life test", does not apply to figures other than Fig. 9.

Accordingly, Applicant respectfully requests entry of the amendment.

Preliminary Matters

Applicant appreciates that the Examiner returned an initialed and signed Information Disclosure Statement submitted on April 25, 2003.

Applicant also appreciates that the Examiner approved the formal drawings received on August 24, 2001.

Claim Rejections –35 U.S.C. § 102 and 35 U.S.C. § 103

Claims 1-4, 6 and 15 are rejected under 35 U.S.C. § 102(b)/103(a) as assertedly being anticipated by, and alternatively unpatentable over, Dasgupta et al. (U.S. 5,547,782) for the reasons given in the Office Action.

Claims 1-7, 10, 14 and 20-26 are rejected under 35 U.S.C. § 102(b)/103(a) as assertedly being anticipated by, and alternatively unpatentable over, Kao, Substrate materials for bipolar

lead/acid batteries, Journal of Power Sources, 70 (1998) for the reasons given in the Office Action.

Claims 1-5, 14 and 20 are rejected under 35 U.S.C. § 102(b)/103(a) as assertedly being anticipated by, and alternatively unpatentable over, Bullock et al. (U.S. 5,045,170) for the reasons given in the Office Action.

Claims 8, 9 and 27 are rejected under 35 U.S.C. § 103(a) as assertedly being unpatentable over Kao for the reasons given in the Office Action.

Applicant traverses the rejections as follows.

The Examiner asserts at page 8, lines 8 to 10 of the Office Action dated July 31, 2003, that "However, forming the cell at standard atmospheric pressure is considered obvious. Constructing a battery at standard atmospheric pressure is not considered patentable subject matter". However, Applicant submits that a pressure described in claim 1 of the present invention is not an absolute pressure but a gage (gauge) pressure. The reasons are indicated as follows.

At page, 9, lines 7 to 15 of the present specification, which are newly amended herein, the phrase "adding a prescribed pressure" which is the feature of the present invention is described. Moreover, from page 23, second line from the bottom to page 24, line 2 in the Example 2 of the present specification, it is described that "It is also necessary that the pressure be limited to a range of from 40 to 200 kPa".

If one assumes that the range of the pressure as above is indicated by an absolute pressure, then 40 kPa, which is the lower limit in the range thereof, is less than an atmosphere

pressure. This does not correspond to the phrase "*adding* a prescribed pressure" (emphasis added), and instead corresponds to *reducing* a pressure, and this assumption is inconsistent with the description "adding a prescribed pressure" at page 9 of the present specification. This contradiction occurs due to the improper presumption that the range of the pressure is indicated by an absolute pressure.

That is, if the whole contents of the present specification are considered, the pressure described in the present Example 2 is not interpreted as an absolute pressure, and it is consequently read as being a gage pressure.

Therefore, it is apparent that a pressure described in claim 1 of the present invention is a gage pressure, based on the description of the present specification, especially the present Example 2.

Next, the Examiner asserts that the phrase in claim 1 that "there is provided a structure such that a pressure of 4×10^4 to 20×10^4 Pa is maintained perpendicular to the surface of said collector" is a product-by-process limitation. Moreover, at page 4, line 6 of the Office Action, the Examiner asserts that "Note the claimed pressure range includes standard atmospheric pressure of 1 atm (10×10^4 Pa)". However, as is mentioned as above, the pressure range does not represent an absolute pressure, but instead represents a gage pressure. The atmosphere pressure of 1 atm is contained within the pressure range. This is because a gage pressure is based on an atmosphere pressure.

Accordingly, the present invention described in claim 1 is not the same as the prior art disclosure or obvious therefrom because present claim 1 requires that the pressure range not

include an atmosphere pressure, even though the Examiner describes at page 4, lines 5 and 6 of the Office Action that "Regardless of the pressure applied to the storage battery, the storage battery of the instant invention and the prior art are the same".

Moreover, the effect of the present invention, which can be obtained by restricting the pressure to the range as claimed, is indicated in the present Example 2 (see pages 21-24). That is, Batteries No. B, C and D, wherein the pressure is within the claimed pressure range, indicate excellent cycle life effects as shown in Figure. 9.

Applicant respectfully submits that the above effects are "unexpected results". Therefore, the Examiner's indication at page 4, line 2 that "product-by-process limitations, in the absence of unexpected results, are obvious" is not proper.

Furthermore, Applicant submits that the present claim 1 does not include product-by-process limitations. The reasons are explained as follows.

In the new claim 1, it is described that "wherein said collector has an active material provided thereon and is kept pressed at a pressure of 4×10^4 to 20×10^4 Pa perpendicularly to the surface of said collector". Accordingly, the present claim 1 has the characteristics that "said collector... is kept pressed". And the present invention described in the present claim 1 is a battery comprising a collector wherein said collector is kept pressed. Therefore, in the battery after its completion, said collector, which is one of the components in the battery, is kept pressed.

Therefore, the unique and novel feature that "said collector... is kept pressed at a pressure" should be contained in one of the components of the final product of claim 1, and it is not a "product-by-process limitation" as asserted by the Examiner.

As discussed above, the rejections by the Examiner do not seem to be suitable because the characteristic that "said collector is kept pressed at a pressure" is included in the component of the present claim 1. Accordingly, Applicant strongly submit that the present claims are novel and unobvious in view of the cited documents (i.e. Dasgupta (US 5,547,782), Kao (Journal of Power Sources, 70 (1998)), and Bullock (US 5,045,170)) which do not satisfy at least the requirement that "said collector...is kept pressed at a pressure".

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a).

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111

U.S. Application No. 09/743,962

Q62718

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